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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,747

12/14/2004

Jochen Dieter Mannhart

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT

PAPER NUMBER

1751

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DELIVERY MODE

06/29/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/501,747	<b>Applicant(s)</b> MANNHART, JOCHEN DIETER	
	<b>Examiner</b> Kallambella Vijayakumar	<b>Art Unit</b> 1751	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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***Detailed Action***

- This application is a 371 of PCT/IB 02/00343 filed 01/29/2002.
- The preliminary amendment filed 07/16/2004 has been entered.

Claims 1-24 cancelled. New Claims 25-50 added.

Claims 25-50 are currently pending with the application.

- The examiner has considered the IDS filed 07/16/2004.

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner has cited by the references on form PTO-892 and/or the applicant/s have cited them on PTO-1449, they have not been considered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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1. Claims 25, 27, 31, 32, 34-36, 41, 43, 47 and 49-50 are rejected under 35 U.S.C. 102(b) as anticipated by Tanaka et al (JP 10-012065).

The examiner makes of record that instant claims 25, 28, 39-41, 43 and 49-50 recite a broad range of components followed by a series of narrow ranges. For examination purposes, the examiner asserts that the narrow ranges recited in instant claims 25, 28, 39-41, 43 and 49-50 are merely exemplary ranges, and thus, the prior art will be applied against the broadest ranges recited in instant claims 25, 28, 39-41, 43 and 49-50. Furthermore, the examiner suggests that applicant should delete the narrow ranges from instant claims 25, 28, 39-41, 43 and 49-50, and add new dependent claims that recite the narrow ranges recited in instant claims 25, 28, 39-41, 43 and 49-50.

The prior art teaches a superconductive wire with high  $J_c$  and provide a manufacturing method of the superconductive wire. The wire contains a layer of superconducting oxide such as YBCO formed over a metal substrate such as Ag-Pt alloy (Para 0021-23). The prior art teaches the polycrystalline metal phase to have 95% or higher orientation degree of a specified crystal plane, and the a- and b-axes conformity degree to be 75% or higher. The crystal grains of the metal phase was made to have 2mm or longer length in the longitudinal direction, 4 or higher aspect ratio of the longitudinal direction to the width direction. The oxide superconductive body was made to have 95% or higher c-axis orientation degree and 75% or higher a- and b-axes conformation degree (Abstract; Para 0007-13; 0017-24). The structure and the degree of orientation of grains in the metal substrate are either same or substantially same as that of the superconductor body/tape, and meets the limitation of percolation path along the length of the tape, microstructure and its ratios in the claims. The examiner notes a product by process limitation in claim-50, wherein the prior art product is either same or substantially same as that claimed by the applicants, and when the reference teaches a product that appears to be the same as, the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113. All the limitations of the instant claims are met.

The reference is anticipatory.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 25, 27, 31, 32, 34-36, 41, 43, 47 and 49-50 are rejected under 35 U.S.C. 103(a) as anticipated by Tanaka et al (JP 10-012065).

The examiner makes of record that instant claims 25, 28, 39-41, 43 and 49-50 recite a broad range of components followed by a series of narrow ranges. For examination purposes, the examiner asserts that the narrow ranges recited in instant claims 25, 28, 39-41, 43 and 49-50 are merely exemplary ranges, and thus, the prior art will be applied against the broadest ranges recited in instant claims 25, 28, 39-41, 43 and 49-50. Furthermore, the examiner suggests that applicant should delete the narrow ranges from

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instant claims 25, 28, 39-41, 43 and 49-50, and add new dependent claims that recite the narrow ranges recited in instant claims 25, 28, 39-41, 43 and 49-50.

The prior art teaches a superconductive wire with high  $J_c$  and provide a manufacturing method of the superconductive wire. The wire contains a layer of superconducting oxide such as YBCO formed over a metal substrate such as Ag-Pt alloy (Para 0021-23). The prior art teaches the polycrystalline metal phase to have 95% or higher orientation degree of a specified crystal plane, and the a- and b-axes conformity degree to be 75% or higher. The crystal grains of the metal phase was made to have 2mm or longer length in the longitudinal direction, 4 or higher aspect ratio of the longitudinal direction to the width direction. The oxide superconductive body was made to have 95% or higher c-axis orientation degree and 75% or higher a- and b-axes conformation degree (Abstract; Para 0007-13; 0017-24). The presence of percolation path along the length of the tape will be obvious because the composition and structure of the tape are similar to that by the applicants. The examiner notes a product by process limitation in claim-50, wherein the prior art product is either same or substantially same as that claimed by the applicants, and When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

The prior art is silent about the ratio of the microcrystal grains per the claims 25, 32, and 41.

However, the prior art teaches a superconductor tape with high degree of biaxial orientation wherein its structure, components used to make the tape and the process steps used to make the tape are similar to that taught by the applicants, and further have the same common utility as the superconducting tape with high  $J_c$ , and the presence of the claimed ratio of the microcrystal grains in the prior art tape would be obvious.

2. Claims 26, 28-30, 33, 37-40, 42- rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 10-012065) in view of Matsumoto et al (US 6,226,858).

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The disclosure on the composition and structure of the superconductor tape by Tanaka et al as set forth in rejection-1 under 35 USC 102(b) and rejection-1 under 35 USC 103(a) are herein incorporated.

The prior art fails to teach the structure with superconductor grain ratio per claim-26, layer structure per claims 28-30, 33 and 42, orientation per claims 37-38 and 46, composition per claims 39-40, process steps per claims 44-45 and 48.

In the analogous art Matsumoto et al teach a method of making a superconductor wire by making a polycrystalline metallic substrate having roll textured surface oriented such that [001] plane is parallel with a rolled plane and <001> axis is parallel with rolled direction, an oxide layer formed on the substrate wherein >90% of <100> plane is inclined at most 10 degrees, and forming a superconductor layer over it (Abstract, Cl-3, Ln 43 – Cl-4, Ln 15). Metallic Substrates included Ni and its alloys (Cl-4, Ln 60-67). Superconductors included REBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> that was coated by method such as vapor phase and liquid phase techniques (Cl-6, Ln 1-8). The buffer layers included one or more layers of CeO<sub>2</sub>, YSZ, SrTiO<sub>3</sub> and MgO (Cl-5, Ln 9-65). The Y123 oxide showed orientation of C-axis perpendicular to the surface of tape in its entire length and dependent upon the underlying oxide layer with improved J<sub>c</sub> (Cl-8, Ex-1, Ln 43-50; Table-1).

It would have been obvious to a person of ordinary skilled in the art to substitute the metallic substrate in the superconductor tape Tanaka et al with the textured metallic substrate of Matsumoto et al as functional equivalent with reasonable expectation of success because Tanaka et al teaches forming superconductor tapes with metallic substrates with high degree or biaxial orientation and is further concerned about improving the degree of orientation resulting in improved J<sub>c</sub> (Abstract) and combined prior art is suggestive of it. Further, it would have been obvious to polish or smoothen the surfaces of the tape layers by mechanical or ion-beams per claims 44-45, because it was well known to do so in the superconductor art (Furuto et al, US 3,983,521, Cl-8, Ln 50-55; Arendt et al, (US 5,872,080, Cl-6, Ln 10-13; Theme et al, US 6,458,223, Cl-12, Ln 5-9) at the time of disclosure of the invention by the applicants

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
June 23, 2007.

  
DOUGLAS MCGINTY  
SUPERVISORY PATENT EXAMINER

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